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Epidemiologic Notes and Reports

Multiple Outbreaks of Staphylococcal Food Poisoning Caused by Canned Mushrooms

Recent outbreaks of staphylococcal foodborne disease have been associated with consumption of canned mushrooms from the People's Republic of China (PRC). These outbreaks have prompted multistate recalls of mushrooms produced by certain canneries in the PRC and a Food and Drug Administration (FDA) order to prohibit entry into the United States of all incoming shipments of institution-sized cans of mushrooms from the PRC. The following reported outbreaks in 1989 led to these actions.

Starkville, Mississippi. On February 13, 22 persons became ill with gastroenteritis several hours after eating at a university cafeteria. Symptoms included nausea, vomiting, diarrhea, and abdominal cramps. Nine persons were hospitalized. Canned mushrooms served with omelets and hamburgers were associated with illness. No deficiencies in food handling were found. Staphylococcal enterotoxin was identified in a sample of implicated mushrooms from the omelet bar and in unopened cans from the same lot.

Queens, New York. On February 28, 48 persons became ill a median of 3 hours after eating lunch in a hospital employee cafeteria. One person was hospitalized. Canned mushrooms served at the salad bar were epidemiologically implicated. Two unopened cans of mushrooms from the same lot as the implicated can contained staphylococcal enterotoxin.

McKeesport, Pennsylvania. On April 17, 12 persons became ill with gastroenteritis a median of 2 hours after eating lunch or dinner at a restaurant. Two persons were hospitalized. Canned mushrooms, consumed on pizza or with a parmigiana sauce, were associated with illness. No deficiencies were found in food preparation or storage. Staphylococcal enterotoxin was found in samples of remaining mushrooms and in unopened cans from the same lot.

Staphylococcal Food Poisoning — Continued

Philipsburg, Pennsylvania. On April 22, 20 persons developed illness several hours after eating food from a take-out pizzeria. Four persons were hospitalized. Only pizza served with canned mushrooms was associated with illness. Staphylococcal enterotoxin was found in a sample of mushrooms from the pizzeria and in unopened cans with the same lot number.

Three other outbreaks possibly associated with mushrooms from the PRC have been reported to CDC; cans associated with these outbreaks have codes similar to those in the four confirmed outbreaks.

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Editorial Note: Staphylococcal enterotoxin typically causes an acute illness 2–4 hours after ingestion; illness is characterized by severe nausea and vomiting, often accompanied by abdominal cramps, diarrhea, and low-grade fever, and resolves within 1–2 days. Staphylococcal enterotoxin is not inactivated by temperatures used in canning and cooking. Finding this toxin in cans means that staphylococci grew and produced enterotoxin in the mushrooms before canning or that staphylococci contaminated the mushrooms after canning, possibly through improperly formed seams. From 1982 to 1987, 75 confirmed staphylococcal outbreaks were reported to CDC's national foodborne disease surveillance system; none of these outbreaks were associated with deficiencies in canning.

All cans implicated in these mushroom-associated outbreaks were large institution-sized (68-ounce, drained weight [#10]) cans of pieces and stems of mushrooms produced in the PRC and shipped through Hong Kong. FDA is monitoring the voluntary recall of shipments of cans that have codes implicated in outbreaks. Cans from lots associated with illness have lids embossed with three-line codes with the plant identifiers "TM" on the first line or "T3" or "M2" on the second line. FDA is prohibiting entry into the United States of all shipments of mushrooms from the PRC in #10 cans because the source of contamination has not been identified and cans produced by other plants might also be involved. FDA has begun sampling mushrooms imported from the PRC in all can sizes, including consumer-sized cans. FDA has offered to assist the PRC in an investigation of the sources of contamination.

The United States imports approximately 50 million pounds of processed mushrooms from the PRC annually. Many other countries also import canned foods from the PRC. Since the canned mushrooms are widely distributed, other canned mushroom-associated outbreaks may have occurred. Possible outbreaks should be reported through state health departments to the Enteric Diseases Branch, Division of Bacterial Diseases, Center for Infectious Diseases, CDC (FAX: [404] 639-3296, Telex: 549571 CDC ATL).

International Notes

Dengue Epidemic — Ecuador, 1988

A large dengue 1 (DEN-1) epidemic occurred in Guayaquil, Ecuador, from late February through April 1988. The Virology Laboratory, Ecuadorian National Institute of Hygiene, detected antidengue hemagglutination-inhibition antibody in serum specimens from persons with viral syndromes who had visited local health centers in Guayaquil during February and March. Dengue infection was subsequently confirmed by CDC through serologic testing and isolation of DEN-1 virus from nine specimens.

From May 14 to May 19, 1988, a population-based cluster serosurvey was conducted in eight of Guayaquil's 14 parishes, representing 72% of the city's population. Serum collected from 1340 persons in 280 households was tested for antidengue IgM antibody using an IgM-capture, enzyme-linked immunosorbent assay (MAC-ELISA). Before DEN-1 was recognized as the infecting serotype of the epidemic, approximately half the specimens were screened using a mixed (DEN 1–4) antigen. Specimens from this group with equivocal results and all subsequent samples were then tested using DEN-1 antigen. Based on the resulting area-specific seropositivity rates, an estimated 420,000 individuals were infected with dengue during the epidemic.

Responses to a standard clinical questionnaire from a subsample of 106 IgM-seropositive persons reflected a pattern of illness consistent with classic dengue fever. Fever was reported by 105 (99%) of this group. More than 50% of the subsample reported one or more of the following symptoms: headache, chills, pruritus, rash, myalgias, and arthralgias; 12 (11%) persons reported hemorrhagic manifestations. Review of data at the National Institute of Hygiene and discharge records from a major tertiary hospital for severe dengue illness detected only one case of severe hemorrhagic disease and no deaths.

In an entomologic survey done concurrently with the serosurvey, the highest *Aedes aegypti* indices (container, 8.1% and 8.7%; house, 13.5% and 18.7%; and Breteau, 23.1 and 26.3) were in two of the parishes with the highest dengue attack rates. In another parish with high seropositivity, however, low mosquito indices were detected, probably as a consequence of intensive larval mosquito-control efforts implemented after infections had occurred but before the entomologic survey.

Weekly surveillance data from public clinics indicated that the number of patients with acute febrile illness increased during March and peaked during the week ending April 2. Most onsets of illness reported by IgM-positive persons in Febres Cordero and Letamendi parishes occurred in mid-April (Figure 1). At the time of the entomologic and serologic surveys, few persons reported current dengue-like illness. Thus, the epidemic appeared to have subsided by mid-May. An intradomiciliary fumigation campaign for *Ae. aegypti* control, involving approximately 350,000 houses, was conducted from May 27 to July 29, after the epidemic had subsided.

Reported by: National Institute of Hygiene, National Malaria Eradication Service and Region II Epidemiology Office, Ministry of Health; Guayas Provincial Health Department, Guayaquil, Ecuador. Dengue Br, Div of Vector-Borne Viral Diseases, Center for Infectious Diseases, CDC.

Editorial Note: In 1948, an *Ae. aegypti* eradication program for yellow fever control was initiated in Ecuador in collaboration with the Pan-American Health Organization (PAHO); by 1958, the country was declared free of this mosquito. As in many other countries in the Americas, however, surveillance declined, and reinfestation occurred.

Dengue — Continued

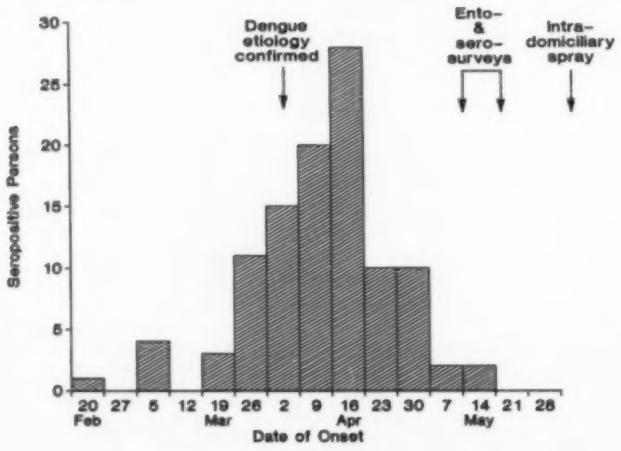
Ae. aegypti was detected in a province north of Guayaquil in 1977 and 1981 and in central Guayaquil in 1985. No dengue transmission was reported in Guayaquil from 1958 until 1988, although unreported transmission may have occurred before 1958 (*1*).

In response to the 1988 epidemic, mosquito-control efforts by the Ecuadoran National Malaria Eradication Service included 1) vehicle-applied, ultralow-volume (ULV) insecticide (malathion) spraying, 2) source reduction by elimination of larval habitats, and 3) treatment of water-holding containers with temephos insecticide. These measures may have contributed to decreasing transmission, although their effect cannot be evaluated retrospectively. Given the high seropositivity rates in areas heavily infested with *Ae. aegypti*, the epidemic probably ended because much of the population had become immune.

This epidemic and others in Brazil (*2*), Bolivia, and Paraguay (PAHO, unpublished data) illustrate the increasing problem of dengue fever in tropical America. The epidemics also demonstrate the vulnerability of many large urban centers in Central and South America to explosive dengue epidemics. Increased travel between countries in the Americas and other regions of the world heightens the risk for repeated introduction of different virus strains and serotypes. These factors, in turn, increase the risk for dengue epidemics, and possibly for epidemics of dengue hemorrhagic fever and urban yellow fever.

In the absence of *Ae. aegypti* eradication, large dengue and yellow fever epidemics can be prevented only through programs that combine surveillance with integrated vector-control programs. While ground-applied ULV insecticide has been recommended to control epidemic dengue (*3*), recent studies in Trinidad (*4*), Suriname (*5*), and Puerto Rico (CDC, unpublished data) suggest that these measures are ineffective

FIGURE 1. Reported date of onset of illness in 106 persons with antidengue IgM antibodies — Febres Cordero and Letamendi parishes, Guayaquil, Ecuador, February 20–May 15, 1988



Dengue — Continued

in reducing adult *Ae. aegypti* densities. Ultimately, control of this mosquito must be community-based and directed toward larval source reduction (*6*).

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Perspectives in Disease Promotion and Health Promotion

Prevalence of Overweight — Behavioral Risk Factor Surveillance System, 1987

An estimated 34 million adults in the United States are overweight (*1*), placing them at increased risk for chronic diseases such as diabetes, hypertension, and some types of cancer (*2,3*). Thus, reducing the prevalence of overweight is an important public health objective.

To examine patterns of overweight adults by geographic location, data from the 1987 Behavioral Risk Factor Surveillance System (BRFSS) (*4*) were used to obtain prevalence estimates for 32 states and the District of Columbia. Participating states were divided into four regions (West, Northeast, South, and Midwest) based on the 1984 census divisions (*5*).

In the BRFSS, state health departments collect data on behavioral risk factors using random-digit–dialed telephone interviews of adults ≥18 years of age. Prevalence estimates, obtained from self-reported weights and heights in BRFSS interviews, are adjusted to the age, sex, and race distribution of each state's population.

Overweight was defined as a body mass index (BMI = weight[kg]/height[m]^2) ≥27.8 for men and ≥27.3 for women. These values represent the sex-specific 85th percentile of BMI for U.S. adults aged 20–29 years, estimated from the Second National Health and Nutrition Examination Survey (NHANES II) (*1*).

Overall, the prevalence of overweight ranged from a high of 25.7% in Wisconsin and Indiana to a low of 15.2% in New Mexico (Table 1). Among men, the prevalence of overweight ranged from 26.9% in Wisconsin to 15.1% in Arizona. For women, the prevalence ranged from 25.8% in the District of Columbia to 13.7% in Hawaii. The median prevalence of overweight was 21.8% for men and 21.1% for women.

The median prevalence of overweight by region was lowest in the West (17.0%), followed by the Northeast (19.8%), the South (22.0%), and the Midwest (23.1%). Adjusting for regional population distribution by age, sex, and race did not change this pattern. Compared with the median prevalence of overweight for all 33 participating units (21.1%), the median prevalence by region is lower in the West and Northeast and higher in the South and Midwest.

Overweight — Continued

TABLE 1. Prevalence of overweight in selected states, by sex — Behavioral Risk Factor Surveillance System, 1987

State	Total*			Men			Women*		
	Sample size	Overweight† %	95% CI§	Sample size	Overweight† %	95% CI§	Sample size	Overweight† %	95% CI§
Alabama	1135	22.3	±3	451	22.6	±4	684	22.1	±3
Arizona	1128	17.3	±2	527	15.1	±3	601	19.5	±3
California	1715	18.7	±2	750	20.6	±3	965	16.8	±3
District of Columbia¶	1051	23.1	±3	450	20.1	±4	601	25.8	±4
Florida	1191	19.3	±3	515	20.7	±4	676	17.9	±3
Georgia	1269	20.8	±3	529	23.3	±4	740	18.3	±3
Hawaii	1804	15.5	±2	848	17.1	±3	956	13.7	±3
Idaho	1718	20.0	±2	668	20.0	±3	1050	20.0	±3
Illinois	1690	21.9	±2	720	21.6	±3	970	22.2	±3
Indiana	2034	25.7	±2	885	26.8	±3	1149	24.6	±3
Kentucky	1725	22.3	±2	712	23.1	±3	1013	21.6	±3
Maine	1167	23.1	±3	461	24.7	±4	706	21.6	±3
Maryland	993	19.8	±3	390	16.5	±4	603	23.0	±4
Massachusetts	1370	19.8	±2	582	22.9	±4	788	17.0	±3
Minnesota	3133	20.7	±2	1467	21.8	±2	1666	19.7	±2
Missouri	1307	23.1	±3	536	23.8	±4	771	22.5	±3
Montana	1141	16.7	±2	479	18.4	±4	662	15.0	±3
Nebraska	1127	21.4	±3	473	22.8	±4	654	20.1	±3
New Hampshire	1144	17.7	±3	522	17.8	±4	622	17.6	±3
New Mexico	1125	15.2	±2	535	16.7	±4	590	13.8	±3
New York	1101	20.1	±3	452	18.0	±4	649	22.0	±4
North Carolina	1690	20.4	±2	704	19.6	±3	986	21.1	±3
North Dakota	1518	23.2	±2	682	23.5	±3	836	22.9	±3
Ohio	1430	25.0	±2	647	26.8	±4	783	23.3	±3
Rhode Island	1685	18.4	±2	734	19.0	±3	951	17.9	±3
South Carolina	1691	21.6	±2	795	22.9	±3	896	20.3	±3
South Dakota	1131	22.5	±3	508	23.6	±4	623	21.4	±4
Tennessee	2274	22.0	±2	895	25.6	±3	1379	18.6	±2
Texas	1115	22.9	±3	491	24.7	±4	624	21.1	±4
Utah	1335	16.6	±2	607	16.7	±3	728	16.5	±3
Washington	1146	21.1	±3	516	20.2	±4	630	22.1	±3
West Virginia	1586	25.1	±2	645	26.4	±4	941	23.9	±3
Wisconsin	1306	25.7	±3	630	26.9	±4	676	24.6	±4

*Pregnant women were excluded from the analysis.
†Overweight is defined as body mass index (wt[kg]/ht[m]^2) ≥27.8 for men and ≥27.3 for women.
§Confidence interval.
¶For this study, the District of Columbia is classified as a state.

Overweight — Continued

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Editorial Note: The prevalence of overweight in this report may be underestimated because the data are based on self-reported responses. When measured weights and heights from NHANES II were used, an estimated 24.2% of men and 27.1% of women in the United States were overweight (*1*), compared with 21.8% of men and 21.1% of women from BRFSS. Assuming that the underestimation of overweight does not differ by state or region, findings of this report can be used to make relative comparisons of the prevalence of overweight between states and regions.

State and regional variations in the prevalence of overweight may result from differences in eating habits and exercise practices (*6,7*). A number of states have reached low prevalence levels of overweight. Public health agencies should encourage moderate but regular physical activity and caloric restriction through decreased dietary fat consumption in weight-loss programs. These efforts are of special importance in states with the highest prevalences of overweight.

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Current Trends

Update: Heterosexual Transmission of Acquired Immunodeficiency Syndrome and Human Immunodeficiency Virus Infection — United States

This report updates data for acquired immunodeficiency syndrome (AIDS) and human immunodeficiency virus (HIV) infection associated with heterosexual transmission and is based on national AIDS surveillance, HIV seroprevalence surveys, and studies of populations at varying levels of risk for heterosexual transmission.

AIDS and HIV — Continued

HETEROSEXUALLY ACQUIRED AIDS CASES

By March 31, 1989, 89,501 AIDS cases in persons ≥13 years of age had been reported to CDC; 3962 (4%) of these were attributed to heterosexual transmission. Forty-one percent of heterosexual transmission cases were reported in the preceding 12 months, compared with 36% of all other AIDS cases. Of the heterosexualtransmission cases, 1337 (34%) persons were born in countries where heterosexual transmission is a major route of HIV infection; 2625 (66%) persons reported heterosexual contact with a partner with or at increased risk for HIV infection (Table 1, page 429). These heterosexual contacts included intravenous-drug users (IVDUs) (72%), bisexual men (10%), recipients of blood or clotting factor concentrates (3%), persons born in countries where heterosexual contact is the major route of transmission (2%), and persons with HIV infection or AIDS and an unreported risk (13%). Men were proportionately more likely than women to report partners from countries where heterosexual contact is the major route of transmission (5%, compared with 1%) or partners with an unreported risk (19%, compared with 11%).

(Continued on page 429)

TABLE I. Summary — cases of specified notifiable diseases, United States

Disease	24th Week Ending			Cumulative, 24th Week Ending		
	June 17, 1989	June 18, 1988	Median 1984-1988	June 17, 1989	June 18, 1988	Median 1984-1988
Acquired Immunodeficiency Syndrome (AIDS)	217	U*	196	15,718	13,815	5,756
Aseptic meningitis	152	114	123	2,017	1,988	1,988
Encephalitis: Primary (arthropod-borne & unspec)	9	15	17	270	333	374
Post-infectious	1	2	3	36	51	54
Gonorrhea: Civilian	11,246	12,680	15,875	288,651	304,636	365,262
Military	227	204	307	4,893	5,567	7,687
Hepatitis: Type A	622	437	439	15,670	11,238	10,116
Type B	506	382	532	10,063	10,002	11,451
Non A, Non B	39	58	74	1,061	1,213	1,623
Unspecified	41	23	88	1,155	937	2,210
Legionellosis	16	22	16	376	417	314
Leprosy	1	6	5	68	81	108
Malaria	23	14	20	493	323	349
Measles: Total†	240	23	92	6,101	1,414	1,620
Indigenous	223	14	73	5,782	1,259	1,436
Imported	17	9	10	319	155	195
Meningococcal infections	55	53	53	1,530	1,666	1,575
Mumps	92	94	94	2,778	2,805	2,125
Pertussis	51	48	48	964	1,051	928
Rubella (German measles)	3	15	15	166	115	271
Syphilis (Primary & Secondary): Civilian	616	767	566	17,659	17,283	12,764
Military	3	1	2	116	84	90
Toxic Shock syndrome	4	7	5	173	148	161
Tuberculosis	357	443	443	8,733	9,102	9,396
Tularemia	2	7	7	36	71	68
Typhoid Fever	10	7	5	191	162	136
Typhus fever, tick-borne (RMSF)	25	28	28	126	130	168
Rabies, animal	85	104	104	2,099	1,905	2,366

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1989		Cum. 1989
Anthrax	-	Leptospirosis (Hawaii 6)	57
Botulism: Foodborne	6	Plague	-
Infant (NYC 1, Calif. 1)	6	Poliomyelitis, Paralytic	-
Other	4	Psittacosis (Upstate NY 1, Calif. 2)	47
Brucellosis (Penn. 1, Ill. 1, Ga. 3)	37	Rabies, human	1
Cholera	-	Tetanus	21
Congenital rubella syndrome	1	Trichinosis	12
Congenital syphilis, ages < 1 year	-		
Diphtheria	-		

*Because AIDS cases are not received weekly from all reporting areas, comparison of weekly figures may be misleading.
†Nine of the 240 reported cases for this week were imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending June 17, 1989 and June 18, 1988 (24th Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989
UNITED STATES	15,718	2,017	270	36	288,651	304,636	15,670	10,053	1,061	1,155	376	68
NEW ENGLAND	684	93	7	2	8,666	9,180	339	525	45	45	26	5
Maine	33	5	3	-	132	194	7	19	3	1	3	-
N.H.	21	8	-	-	73	132	32	28	7	3	-	-
Vt.	7	5	-	-	33	72	18	38	5	-	-	-
Mass.	380	33	2	2	3,247	3,260	107	321	21	30	17	3
R.I.	36	25	-	-	599	869	22	42	3	3	6	1
Conn.	208	17	2	-	4,582	4,653	153	77	6	8	-	1
MID. ATLANTIC	4,480	243	45	4	41,535	49,038	2,019	1,557	94	157	96	9
Upstate N.Y.	553	104	14	3	7,407	5,700	469	329	42	6	30	1
N.Y. City	2,304	37	2	1	18,847	22,853	164	558	16	130	9	6
N.J.	1,058	-	29	-	6,867	6,908	214	272	11	5	17	1
Pa.	565	102	-	-	8,414	13,577	1,172	398	25	16	40	1
E.N. CENTRAL	1,279	291	80	2	52,025	48,012	860	1,204	113	40	104	2
Ohio	210	66	18	1	13,937	11,224	194	275	20	6	58	-
Ind.	227	59	20	-	4,056	3,764	64	186	16	13	17	1
Ill.	573	58	18	1	17,111	13,632	401	325	32	13	10	1
Mich.	216	98	19	-	14,335	15,287	154	323	33	8	15	-
Wis.	53	10	5	-	2,586	4,105	47	95	12	-	4	-
W.N. CENTRAL	370	88	11	2	13,891	12,231	519	441	44	12	16	1
Minn.	74	5	-	1	1,410	1,687	54	49	7	3	2	-
Iowa	32	17	2	-	1,046	928	39	22	9	-	4	-
Mo.	173	26	-	-	8,240	6,805	287	299	16	5	4	-
N. Dak.	3	4	1	-	55	82	3	15	3	-	-	-
S. Dak.	4	6	2	-	124	234	4	6	3	-	-	-
Nebr.	13	6	2	-	778	726	53	14	-	2	2	1
Kans.	71	24	4	1	2,238	1,769	79	36	6	2	4	-
S. ATLANTIC	3,292	424	37	9	83,242	85,540	1,316	2,006	152	154	48	-
Del.	48	12	1	-	1,320	1,246	19	73	1	2	4	-
Md.	324	55	9	2	9,011	8,886	314	366	17	16	12	-
D.C.	266	6	-	-	5,502	6,214	2	14	2	-	-	-
Va.	232	68	16	-	6,998	6,016	150	133	24	95	2	-
W. Va.	20	6	6	-	616	624	10	39	2	3	-	-
N.C.	203	51	1	1	12,783	12,211	232	495	49	-	14	-
S.C.	161	11	-	-	7,070	6,423	20	263	3	6	2	-
Ga.	488	34	1	-	16,586	16,792	153	200	9	6	5	-
Fla.	1,550	181	3	6	23,356	27,128	416	433	45	26	9	-
E.S. CENTRAL	369	198	15	1	24,082	23,388	162	702	75	1	15	-
Ky.	60	50	4	1	2,301	2,261	58	202	24	-	3	-
Tenn.	129	27	-	-	8,027	7,884	51	349	19	-	7	-
Ala.	100	90	11	-	7,484	7,474	32	102	29	1	5	-
Miss.	80	31	-	-	6,270	5,769	21	49	3	-	-	-
W.S. CENTRAL	1,357	197	29	2	31,675	34,462	1,805	977	74	278	18	13
Ark.	34	6	-	-	3,193	3,196	107	33	2	2	1	-
La.	218	17	5	-	6,634	7,286	134	172	8	1	4	-
Okla.	76	24	7	-	2,697	3,127	182	85	16	11	10	-
Tex.	1,029	150	17	2	19,151	20,853	1,382	687	48	264	3	13
MOUNTAIN	473	73	8	1	6,257	6,687	2,170	621	106	91	21	1
Mont.	9	3	-	-	96	217	25	22	2	1	2	1
Idaho	12	-	-	-	95	185	81	46	6	2	-	-
Wyo.	8	1	-	-	50	111	19	2	-	-	-	-
Colo.	170	28	2	1	1,391	1,563	297	93	36	41	2	-
N. Mex.	32	6	1	-	644	619	274	96	23	2	2	-
Ariz.	121	27	2	-	2,190	2,342	1,133	221	22	41	9	-
Utah	29	6	1	-	199	265	156	49	10	3	3	-
Nev.	92	2	2	-	1,592	1,385	185	92	7	1	3	-
PACIFIC	3,414	410	38	13	27,278	36,098	6,480	2,030	358	377	32	37
Wash.	273	-	-	1	2,791	3,133	1,509	410	104	26	7	2
Oreg.	110	-	-	-	1,373	1,414	1,125	207	40	8	1	1
Calif.	2,963	385	33	12	22,436	30,748	3,332	1,363	206	338	22	30
Alaska	5	4	4	-	446	487	423	24	5	2	1	-
Hawaii	63	21	1	-	232	316	91	26	3	3	1	4
Guam	1	-	-	-	-	73	-	-	-	-	-	-
P.R.	741	48	2	-	516	691	74	98	8	10	-	6
V.I.	16	-	-	-	318	184	-	4	-	-	-	-
Amer. Samoa	-	-	-	-	-	43	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	31	-	-	-	-	-	-

N: Not notifiable U: Unavailable C.N.M.I.: Commonwealth of the Northern Mariana Islands

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending June 17, 1989 and June 18, 1988 (24th Week)

Reporting Area	Malaria	Measles (Rubeola)					Meningococcal infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported*		Total									
	Cum. 1989	1989	Cum. 1989	1989	Cum. 1989	Cum. 1988	Cum. 1989	1989	Cum. 1989	1989	Cum. 1989	Cum. 1988	1989	Cum. 1989	Cum. 1988
UNITED STATES	493	223	5,782	17	319	1,414	1,530	92	2,778	51	964	1,051	3	166	115
NEW ENGLAND	30	3	205	-	16	66	107	-	24	9	215	137	-	5	1
Maine	-	-	-	-	-	-	13	-	-	-	4	11	-	-	-
N.H.	2	3	8	-	-	56	11	-	10	-	5	29	-	3	-
Vt.	1	-	1	-	-	-	6	-	-	1	6	2	-	1	-
Mass.	19	-	17	-	12	1	52	-	13	7	189	86	-	1	-
R.I.	5	-	35	-	2	-	1	-	-	-	2	1	-	-	1
Conn.	3	-	144	-	2	9	24	-	1	1	9	9	-	-	-
MID. ATLANTIC	84	9	422	4	146	476	231	3	165	1	62	42	1	9	10
Upstate N.Y.	17	1	39	1†	93	6	74	2	98	1	33	24	-	2	2
N.Y. City	26	3	45	-	14	29	29	-	16	-	2	1	1	7	5
N.J.	19	-	247	-	-	14	51	-	11	-	14	4	-	-	1
Pa.	22	5	91	3†	39	427	77	1	40	-	13	13	-	-	2
E.N. CENTRAL	31	71	925	1	42	141	189	6	236	-	36	126	1	18	22
Ohio	6	69	526	-	35	13	77	-	8	-	1	25	-	3	-
Ind.	5	-	17	-	-	44	22	-	18	-	8	50	-	-	-
Ill.	13	-	379	-	-	66	53	-	104	-	-	9	-	13	18
Mich.	5	2	3	1§	5	18	30	6	93	-	20	18	1	1	4
Wis.	2	-	-	-	2	-	7	-	13	-	7	24	-	1	-
W.N. CENTRAL	15	-	427	-	4	10	44	3	342	1	22	44	-	4	-
Minn.	6	-	-	-	-	10	10	-	-	-	-	12	-	-	-
Iowa	2	-	4	-	1	-	-	1	19	1	10	14	-	-	-
Mo.	4	-	237	-	-	-	15	1	44	-	10	6	-	3	-
N. Dak.	1	-	-	-	-	-	-	-	-	-	-	6	-	-	-
S. Dak.	-	-	-	-	-	-	4	-	-	-	1	2	-	-	-
Nebr.	1	-	108	-	2	-	10	-	4	-	-	-	-	-	-
Kans.	1	-	78	-	1	-	5	1	275	-	1	4	-	1	-
S. ATLANTIC	83	6	380	1	25	240	252	19	510	5	82	103	-	7	14
Del.	1	2	58	-	1	-	2	-	1	-	1	3	-	-	-
Md.	16	1	35	1§	15	7	40	11	308	1	8	17	-	2	-
D.C.	4	-	5	-	3	-	11	4	73	-	-	-	-	-	-
Va.	15	-	15	-	3	134	28	1	62	-	6	16	-	-	11
W. Va.	1	-	28	-	-	6	8	-	9	1	11	1	-	-	-
N.C.	11	-	167	-	-	1	31	-	15	-	18	29	-	1	-
S.C.	3	-	-	-	-	-	15	-	16	-	-	-	-	-	-
Ga.	6	-	-	-	-	-	51	2	7	1	10	17	-	-	-
Fla.	26	3	52	-	3	92	66	1	19	2	28	20	-	4	3
E.S. CENTRAL	6	1	89	-	-	60	48	2	94	2	36	15	-	2	-
Ky.	-	-	2	-	-	32	29	-	9	-	1	-	-	-	-
Tenn.	-	-	46	-	-	-	3	1	27	1	9	8	-	2	-
Ala.	4	1	41	-	-	-	13	-	10	1	24	5	-	-	-
Miss.	2	-	-	-	-	28	3	N	N	-	2	2	-	-	-
W.S. CENTRAL	20	113	2,663	5	36	13	103	59	1,113	15	42	65	-	12	6
Ark.	-	-	-	-	2	-	5	-	108	-	10	5	-	1	2
La.	1	-	6	-	-	-	26	35	429	-	4	9	-	5	-
Okla.	2	8	100	-	-	8	11	-	165	-	13	24	-	1	1
Tex.	17	105	2,557	5†	34	5	62	24	411	15	15	27	-	5	3
MOUNTAIN	16	-	165	1	19	116	42	-	107	9	333	331	-	30	5
Mont.	1	-	12	-	1	1	1	-	2	9	9	1	-	1	-
Idaho	2	-	-	1§	2	1	2	-	8	-	37	247	-	28	-
Wyo.	1	-	-	-	-	-	-	-	7	-	-	1	-	-	-
Colo.	2	-	57	-	1	114	18	-	14	-	19	13	-	-	1
N. Mex.	1	-	15	-	15	-	-	N	N	-	4	4	-	-	-
Ariz.	6	-	45	-	-	-	19	-	69	-	257	42	-	-	-
Utah	-	-	36	-	-	-	2	-	3	-	6	22	-	-	3
Nev.	3	-	-	-	-	-	-	-	4	-	1	1	-	1	1
PACIFIC	209	20	526	5	31	292	514	-	187	9	136	188	1	79	57
Wash.	15	-	20	-	12	2	52	-	19	4	29	40	-	-	-
Oreg.	11	-	-	5§	11	3	36	N	N	-	5	6	-	1	-
Calif.	176	16	495	-	4	281	421	-	158	3	98	101	-	57	46
Alaska	3	-	-	-	-	-	4	-	1	-	-	4	-	-	-
Hawaii	3	4	11	-	4	6	1	-	9	2	4	37	1	21	11
Guam	-	U	-	U	-	1	-	U	-	U	-	-	U	-	1
P.R.	1	-	363	-	-	174	4	1	7	-	3	7	-	5	1
V.I.	-	-	2	-	-	-	-	1	9	-	-	-	-	-	-
Amer. Samoa	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-
C.N.M.I.	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending June 17, 1989 and June 18, 1988 (24th Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1988	Cum. 1989	Cum. 1989	Cum. 1989	Cum. 1989
UNITED STATES	17,659	17,283	173	8,733	9,102	36	191	126	2,099
NEW ENGLAND	774	459	6	232	188	-	14	2	2
Maine	5	5	2	3	3	-	-	-	1
N.H.	3	6	-	14	-	-	-	-	-
Vt.	-	1	-	4	1	-	-	-	-
Mass.	234	186	1	118	116	-	6	-	-
R.I.	14	14	-	30	16	-	5	1	-
Conn.	518	247	3	63	52	-	3	1	1
MID. ATLANTIC	3,258	3,569	28	1,768	1,716	1	50	7	283
Upstate N.Y.	383	235	4	157	256	-	5	3	6
N.Y. City	1,552	2,303	2	986	836	-	34	-	-
N.J.	632	378	8	294	319	-	7	2	-
Pa.	691	653	14	331	305	1	4	2	277
E.N. CENTRAL	703	500	26	1,022	1,011	3	17	18	46
Ohio	52	52	7	184	185	-	4	9	2
Ind.	31	29	5	83	110	1	1	4	2
Ill.	332	242	5	455	420	-	8	4	9
Mich.	268	159	9	243	240	1	3	1	6
Wis.	20	18	-	57	56	1	1	-	27
W.N. CENTRAL	152	105	25	249	234	14	5	21	263
Minn.	11	8	7	51	40	-	1	-	60
Iowa	17	10	4	28	17	-	2	1	63
Mo.	78	62	4	106	115	7	1	20	21
N. Dak.	1	2	-	9	5	-	-	-	14
S. Dak.	-	-	3	12	19	4	-	-	55
Nebr.	17	17	5	10	7	-	-	-	22
Kans.	28	6	2	33	31	3	1	-	28
S. ATLANTIC	6,894	6,204	16	1,935	1,986	2	18	34	650
Del.	77	59	-	19	19	-	2	-	16
Md.	342	346	1	172	198	-	4	5	182
D.C.	422	279	1	78	84	-	2	-	2
Va.	258	205	4	168	198	2	3	2	134
W. Va.	8	6	-	38	38	-	-	-	30
N.C.	426	354	4	223	172	-	2	19	2
S.C.	363	298	3	226	219	-	-	4	110
Ga.	1,444	992	2	286	321	-	1	3	110
Fla.	3,554	3,665	1	725	737	-	4	1	64
E.S. CENTRAL	1,199	886	3	783	740	3	1	16	198
Ky.	24	31	1	178	188	1	1	5	88
Tenn.	518	366	1	230	193	1	-	9	55
Ala.	390	262	1	224	230	-	-	2	54
Miss.	267	227	-	151	129	1	-	-	-
W.S. CENTRAL	2,488	1,894	13	1,094	1,157	8	7	15	341
Ark.	164	107	1	118	123	3	-	1	43
La.	566	372	-	138	159	-	1	-	3
Okla.	39	73	7	99	101	5	1	13	52
Tex.	1,719	1,342	5	739	774	-	5	1	243
MOUNTAIN	333	343	22	217	229	3	3	11	102
Mont.	1	2	-	8	5	-	-	9	40
Idaho	1	-	2	8	-	-	-	-	-
Wyo.	4	1	1	-	1	-	-	1	30
Colo.	51	48	4	12	37	1	1	1	2
N. Mex.	12	22	2	40	48	-	-	-	15
Ariz.	90	83	9	108	104	-	1	-	13
Utah	11	10	3	19	10	2	1	-	1
Nev.	163	177	1	22	24	-	-	-	1
PACIFIC	1,858	3,323	34	1,433	1,841	2	76	2	214
Wash.	136	104	2	105	107	-	4	-	-
Oreg.	129	137	-	64	65	-	4	1	-
Calif.	1,584	3,056	31	1,171	1,578	2	68	1	155
Alaska	3	7	-	19	18	-	-	-	59
Hawaii	6	19	1	74	73	-	2	-	-
Guam	-	3	-	-	8	-	-	-	-
P.R.	249	300	-	151	100	-	-	-	31
V.I.	2	1	-	3	3	-	-	-	-
Amer. Samoa	-	-	-	-	3	-	-	-	-
C.N.M.I.	-	1	-	-	12	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending June 17, 1989 (24th Week)

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
NEW ENGLAND	626	422	114	48	24	18	42
Boston, Mass.	171	101	37	20	8	5	15
Bridgeport, Conn.	41	33	2	5	1	-	3
Cambridge, Mass.	21	17	3	-	1	-	-
Fall River, Mass.	28	22	5	1	-	-	2
Hartford, Conn.	76	43	19	3	6	5	4
Lowell, Mass.	20	16	3	1	-	-	1
Lynn, Mass.	12	10	2	-	-	-	-
New Bedford, Mass.	16	14	1	1	-	-	-
New Haven, Conn.	44	25	5	9	3	2	5
Providence, R.I.	51	40	6	2	1	2	2
Somerville, Mass.	8	7	1	-	-	-	1
Springfield, Mass.§	43	31	9	1	-	2	4
Waterbury, Conn.	30	20	7	1	2	-	1
Worcester, Mass.	65	43	14	4	2	2	4
MID. ATLANTIC	2,662	1,675	504	326	77	79	127
Albany, N.Y.	42	35	4	3	-	-	3
Allentown, Pa.	14	9	3	1	1	-	-
Buffalo, N.Y.	125	73	27	15	7	3	6
Camden, N.J.	29	20	3	3	3	-	-
Elizabeth, N.J.	22	16	4	2	-	-	2
Erie, Pa.†	49	38	8	1	1	1	3
Jersey City, N.J.	68	44	11	7	3	3	6
N.Y. City, N.Y.	1,408	864	265	206	39	34	51
Newark, N.J.	54	25	12	10	1	5	4
Paterson, N.J.	18	8	5	5	-	-	2
Philadelphia, Pa.	438	264	81	53	18	22	29
Pittsburgh, Pa.†	59	39	11	4	2	3	4
Reading, Pa.	27	20	7	-	-	-	4
Rochester, N.Y.	90	60	21	6	1	2	2
Schenectady, N.Y.	24	20	3	1	-	-	1
Scranton, Pa.†	26	20	6	-	-	-	1
Syracuse, N.Y.	96	70	18	4	1	3	3
Trenton, N.J.	35	22	7	3	-	3	1
Utica, N.Y.	14	10	3	1	-	-	2
Yonkers, N.Y.	24	18	5	1	-	-	3
E.N. CENTRAL	2,232	1,447	476	166	50	83	87
Akron, Ohio	45	34	8	2	1	-	-
Canton, Ohio	40	31	4	2	1	2	2
Chicago, Ill.§	564	362	125	45	10	22	16
Cincinnati, Ohio	125	70	37	9	6	3	9
Cleveland, Ohio	149	92	37	13	6	1	3
Columbus, Ohio	137	92	31	9	3	2	3
Dayton, Ohio	105	59	34	3	3	6	5
Detroit, Mich.	273	126	75	38	10	24	9
Evansville, Ind.	39	30	7	1	-	1	1
Fort Wayne, Ind.	45	32	6	2	3	2	1
Gary, Ind.	22	11	5	5	1	-	1
Grand Rapids, Mich.	44	28	5	1	4	6	4
Indianapolis, Ind.	169	123	24	16	2	4	1
Madison, Wis.	40	23	10	5	1	1	4
Milwaukee, Wis.	134	105	19	3	2	5	5
Peoria, Ill.	43	32	10	-	1	-	4
Rockford, Ill.	44	30	11	2	1	-	2
South Bend, Ind.	41	32	8	-	-	1	4
Toledo, Ohio	103	80	12	6	3	2	9
Youngstown, Ohio	70	55	8	4	2	1	4
W.N. CENTRAL	762	530	158	37	19	18	37
Des Moines, Iowa	53	38	11	2	1	1	3
Duluth, Minn.	25	17	5	2	-	1	1
Kansas City, Kans.	26	17	3	4	1	1	3
Kansas City, Mo.	113	72	35	2	1	3	6
Lincoln, Nebr.	24	18	5	1	-	-	2
Minneapolis, Minn.	211	152	36	9	7	7	8
Omaha, Nebr.	72	52	14	4	2	-	2
St. Louis, Mo.	137	92	31	7	3	4	8
St. Paul, Minn.	56	39	11	2	4	-	1
Wichita, Kans.	45	33	7	4	-	1	3

Reporting Area	All Causes, By Age (Years)						P&I**
	All Ages	≥65	45-64	25-44	1-24	<1	Total
S. ATLANTIC	1,521	903	327	170	49	68	83
Atlanta, Ga.	172	95	37	29	6	5	6
Baltimore, Md.	427	286	75	42	9	15	27
Charlotte, N.C.	55	35	14	4	2	-	6
Jacksonville, Fla.	117	65	25	17	7	3	5
Miami, Fla.	148	88	40	10	2	7	1
Norfolk, Va.	68	45	9	3	4	7	2
Richmond, Va.	80	43	23	7	6	1	10
Savannah, Ga.	59	39	9	5	2	4	10
St. Petersburg, Fla.	82	47	16	4	-	15	3
Tampa, Fla.	87	50	20	7	4	4	8
Washington, D.C.	206	93	56	42	7	7	5
Wilmington, Del.	20	17	3	-	-	-	-
E.S. CENTRAL	761	515	159	45	25	17	39
Birmingham, Ala.	120	77	23	10	6	4	3
Chattanooga, Tenn.	66	52	10	2	1	1	2
Knoxville, Tenn.	72	46	19	3	4	-	8
Louisville, Ky.	85	52	19	9	4	1	5
Memphis, Tenn.	145	88	35	10	3	9	11
Mobile, Ala.	71	50	13	4	4	-	2
Montgomery, Ala.	56	45	9	1	-	1	-
Nashville, Tenn.	146	105	31	6	3	1	8
W.S. CENTRAL	1,703	1,038	379	172	61	52	66
Austin, Tex.	68	40	13	10	3	2	3
Baton Rouge, La.	34	17	9	4	2	2	3
Corpus Christi, Tex.§	46	36	8	2	-	-	1
Dallas, Tex.	188	106	45	12	13	13	6
El Paso, Tex.	69	45	16	4	1	3	8
Fort Worth, Tex	97	59	22	11	1	4	10
Houston, Tex.§	734	436	169	89	24	16	18
Little Rock, Ark.	56	38	9	6	1	1	-
New Orleans, La.	138	83	28	18	5	4	-
San Antonio, Tex.	157	101	34	14	5	3	10
Shreveport, La.	23	14	6	1	1	1	2
Tulsa, Okla.	93	64	20	1	5	3	5
MOUNTAIN	623	391	135	51	24	22	27
Albuquerque, N. Mex.	68	46	12	5	3	2	4
Colo. Springs, Colo.	44	26	12	3	1	2	6
Denver, Colo.	93	51	26	3	6	7	2
Las Vegas, Nev.	98	56	30	9	3	-	4
Ogden, Utah	19	10	1	5	1	2	-
Phoenix, Ariz.	135	90	27	12	5	1	3
Pueblo, Colo.	20	15	3	1	1	-	2
Salt Lake City, Utah	44	29	6	2	1	6	1
Tucson, Ariz.	102	68	18	11	3	2	5
PACIFIC	1,983	1,284	375	193	53	72	127
Berkeley, Calif.	21	17	2	2	-	-	-
Fresno, Calif.	83	54	16	8	1	4	3
Glendale, Calif.	32	25	3	4	-	-	3
Honolulu, Hawaii	74	51	19	3	1	-	10
Long Beach, Calif.	90	55	16	6	4	9	12
Los Angeles Calif.	515	321	96	67	15	10	16
Oakland, Calif.§	86	58	17	8	1	2	5
Pasadena, Calif.	28	18	7	1	2	-	4
Portland, Oreg.	133	91	19	12	2	9	9
Sacramento, Calif.	158	102	33	10	5	8	12
San Diego, Calif.	180	116	31	19	5	9	18
San Francisco, Calif.	165	93	34	28	6	4	9
San Jose, Calif.	158	110	30	10	3	5	11
Seattle, Wash.	160	104	32	12	6	6	4
Spokane, Wash.	50	33	12	2	-	3	2
Tacoma, Wash.	50	36	8	1	2	3	9
TOTAL	12,873††	8,205	2,627	1,208	392	429	635

*Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

**Pneumonia and influenza.

†Because of changes in reporting methods in these 3 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

††Total includes unknown ages.

§Data not available. Figures are estimates based on average of past available 4 weeks.

AIDS and HIV – Continued

While the number of heterosexually acquired AIDS cases reported each year has increased, the overall proportion has remained relatively stable—from 5.2% of adult AIDS cases reported in 1983 to 4.9% in 1988. However, the composition of the group has changed over time; since 1986, persons reporting sexual contact with a partner at risk have outnumbered HIV-infected persons born in countries with predominantly heterosexual HIV transmission (Figure 1). From 1987 to 1988, the percentage increase for heterosexually transmitted AIDS among persons born in countries where heterosexual contact is the major route of transmission was 41%, compared with a 97% increase for persons with an "at-risk" partner.

Of the 2625 persons with an "at-risk" partner, 672 (26%) were men and 1953 (74%) were women, representing 0.8% and 25% of AIDS cases in all males and females, respectively. Men were older than women (mean age: 40, compared with 34 years, respectively). Forty-seven percent were black, 29% white, 23% Hispanic, 0.6% Asian Pacific Islander, and 0.2% American Indian/Alaskan Native. In the 12 months before March 31, 1989, blacks and Hispanics had the highest incidences of heterosexually acquired AIDS per 100,000 population: 3.1 and 3.5, respectively, for women and 1.9 and 0.8, respectively, for men, compared with 0.3 and 0.2 cases per 100,000 for white women and men, respectively. Overall, rates for blacks and Hispanics were 12 and 10 times, respectively, the rate for whites.

Forty-six states, the District of Columbia, Puerto Rico, and the Virgin Islands have reported AIDS cases in persons who had heterosexual contact with an "at-risk"

TABLE 1. Adults with heterosexually acquired AIDS – United States, reported through March 31, 1989

Risk category	Males		Females		Total	
	No.	(%)	No.	(%)	No.	(%)
Heterosexual contact*:	672	(39)	1953	(85)	2625	(65)
With IV-drug user	490		1394		1884	
With bisexual male	–		258		258	
With person with hemophilia or coagulation disorder	3		30		33	
With person born in country where heterosexual contact is the major route of transmission	36		23		59	
With transfusion recipient with HIV infection	15		42		57	
With person with HIV infection, risk not specified	128		206		334	
Born in country where heterosexual contact is the major route of transmission	1000	(61)	337	(15)	1337	(35)
Total	**1672**	**(100)**	**2290**	**(100)**	**3962**	**(100)**

*Includes 29 persons born in countries where heterosexual contact is the major route of transmission who also reported having a sex partner who was an IV-drug user, bisexual man, or person with hemophilia or a coagulation disorder.

AIDS and HIV — Continued

partner. The geographic distributions of women who were sex partners of bisexual men or men who used IV drugs were similar to those of men with AIDS from these two groups (Table 2A and 2B). In contrast, the geographic distribution of men who reported heterosexual contact with a woman who used IV drugs was different from that of women with AIDS who were IVDUs (Table 2C). For example, New York accounted for 40% of female IVDUs with AIDS but for only 4% of men who reported sexual contact with a female IVDU, and Florida accounted for 25% of men reporting IV-drug-using partners but for only 9% of female IVDUs with AIDS.

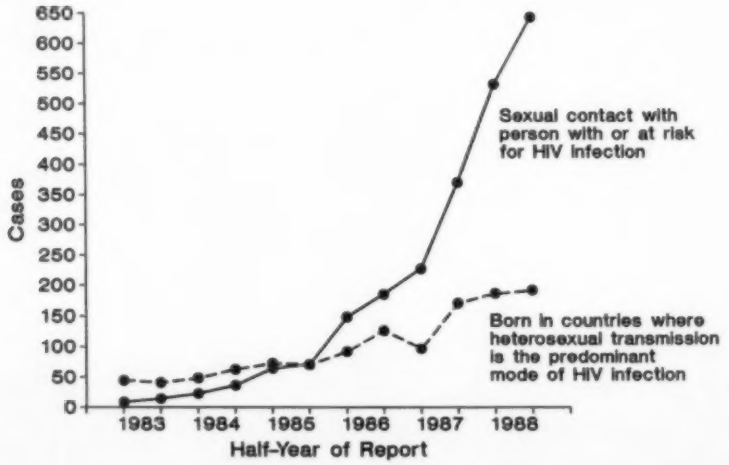
HETEROSEXUAL TRANSMISSION OF HIV IN SURVEYED POPULATIONS

Risk for HIV transmission from infected persons to their steady heterosexual partners without other risks varied in 26 studies that included at least 20 couples each; in heterosexual partners, HIV seroprevalence ranged from 0 to 58% (median: 24%) (*1,2*).

Female prostitutes are at increased risk for acquisition and potential transmission of HIV infection. In the United States, HIV infection in prostitutes is strongly associated with IV-drug use. In a multicity study, HIV antibody was detected in 180 (13%) of 1378 female prostitutes; 80% of the infected prostitutes reported using IV drugs (*3*). In prostitutes with no histories or findings suggestive of IV-drug use, HIV seroprevalence was 5%; HIV seropositivity in this group was greater among blacks and Hispanics and among those with >200 lifetime nonpaying sex partners.

Seroprevalence data are limited for heterosexuals who are not sex partners of persons known to be infected or at increased risk. Data on heterosexuals from sexually transmitted disease (STD) clinics indicate that HIV seroprevalence is highest among IVDUs and their sex partners. In an ongoing study begun in January 1988 of New York City STD clinic clients who consented to be interviewed and tested for HIV, 63 (47%) of 134 IVDUs and 25 (13%) of 193 persons with a sex partner who used IV drugs were HIV-positive (*4*). In addition, a 1987 survey of STD clinic attendees in

FIGURE 1. Heterosexually acquired AIDS cases, by half-year of report — United States, 1983–1988



AIDS and HIV — Continued

Baltimore detected HIV antibody in 34 (15%) of 224 men and 14 (22%) of 65 women with self-reported histories of IV-drug use and 18 (11%) of 170 women who reported sexual contact with men who were bisexual or used IV drugs (*5*). Among clinic patients who did not report any risks for HIV infection, including male homosexual contact, IV-drug use, or sexual contact with a partner at increased risk, HIV seroprevalence was 4% (20/571) in men and 5% (9/196) in women in New York City (*4*), 3% (56/2068) in men and 2% (20/1115) in women in Baltimore (*5*), and 0.2% (4/1634) in men and 0 (0/940) in women in Denver (*6*).

TABLE 2. Geographic distribution of selected heterosexually acquired AIDS cases reported through March 31, 1989

A.	Females with IVDU partners		Male IVDUs	
Residence	No.	(%)	No.	(%)
California	60	(4)	547	(4)
Connecticut	42	(3)	286	(2)
Florida	113	(8)	864	(6)
New Jersey	265	(19)	2,452	(18)
New York	525	(38)	6,162	(44)
Puerto Rico	91	(7)	1,019	(7)
Other	298	(21)	2,607	(19)
Total	**1,394**	**(100)**	**13,937**	**(100)**

B.	Females with bisexual male partners		Homosexual/ bisexual males	
Residence	No.	(%)	No.	(%)
California	53	(20)	14,615	(26)
Florida	15	(6)	3,745	(7)
New York	56	(22)	10,046	(18)
Texas	15	(6)	4,771	(9)
Other	119	(46)	21,828	(40)
Total	**258**	**(100)**	**55,005**	**(100)**

C.	Males with IVDU partners		Female IVDUs	
Residence	No.	(%)	No.	(%)
California	44	(9)	148	(4)
Connecticut	15	(3)	131	(3)
Florida	124	(25)	377	(9)
New Jersey	73	(15)	801	(20)
New York	22	(4)	1,629	(40)
Puerto Rico	18	(4)	202	(5)
Other	194	(40)	774	(19)
Total	**490**	**(100)**	**4,062**	**(100)**

AIDS and HIV — Continued

HIV transmission among heterosexually active persons without known risks in either partner also can be monitored by interviewing seropositive civilian recruit applicants for military service and blood donors. HIV seropositivity lower than that in comparable segments of the general population would be expected because both groups are screened to exclude persons with histories of male homosexual contact, IV-drug use, or hemophilia. Seropositive recruit applicants and blood donors therefore might be expected to include a relatively large proportion of persons with HIV infection acquired from heterosexual partners who were not suspected or known to be infected.

Among approximately 1.5 million male and 253,547 female civilian recruit applicants screened during October 1985–September 1988, 0.15% and 0.07%, respectively, were HIV seropositive (*2*). In limited follow-up studies of seropositive male recruit applicants, most had risk factors for HIV infection other than heterosexual contact. In New York City and Denver, 19 (86%) of 22 and 10 (91%) of 11 seropositive male applicants, respectively, admitted male homosexual contact or IV-drug use; the remaining four men reported contact with a female prostitute (*7,8*). Too few seropositive women were available for analysis.

Among 1.3 million male and 1.2 million female first-time blood donors tested during April 1985–September 1988, 0.067% and 0.014%, respectively, were HIV-seropositive (*2*). In an ongoing follow-up study of seropositive blood donors in 16 cities, 50% of interviewed donors reported male homosexual contact or IV-drug use; 18 (8%) of 228 interviewed seropositive males and 43 (57%) of 76 women reported heterosexual contact with a partner at risk for HIV infection; women were more likely than men (36% and 29%, respectively) to have no risk identified (*9*).

Reported by: Local, state, and territorial health departments. AIDS Program, Center for Infectious Diseases, CDC.

Editorial Note: In general, a person's risk of acquiring HIV infection through sexual contact depends on 1) the number of different partners, 2) the likelihood (prevalence) of HIV infection in these partners, and 3) the probability of virus transmission during sexual contact with an infected partner (*10*). Virus transmission, in turn, may be affected by biologic factors, such as concurrent STD infections in either partner (e.g., genital ulcer disease); behavioral factors, such as type of sex practice and use of condoms; or varying levels of infectivity in the source partner related to clinical stage of disease (*11*). Based on these factors, the risk for HIV infection is highest for a regular partner of an HIV-infected person. Persons who have sex partners with risk factors for HIV infection or who themselves have multiple partners from urban settings with high rates of IV-drug and "crack" cocaine use (*4,12*), prostitution, and other STDs are also at increased risk.

Surveillance data for heterosexual transmission of HIV infection need to be interpreted cautiously. The actual number of AIDS cases reported to be associated with heterosexual transmission probably underestimates the role of this mode of spread. Nearly 3000 persons classified as bisexual men and IVDUs and persons with hemophilia also reported heterosexual contact with a person at risk. Therefore, some of these persons may have acquired HIV through heterosexual contact rather than through these other routes. Similarly, some persons with an undetermined risk may have become infected through heterosexual contact. Persons with an undetermined risk are demographically similar to AIDS patients who report IV-drug use or sexual contact with a partner at risk. Nearly 40% of persons with an undetermined risk have

AIDS and HIV — Continued

self-reported histories of an STD, and one third of men reported sexual contact with a female prostitute (*13*). Conversely, some persons with AIDS attributed to heterosexual transmission may have other unacknowledged or undetermined risk factors. For example, inconsistencies in the geographic distribution of men who reported sexual contact with a female IVDU, as well as the tendency of men to have partners with an unknown risk, suggests that some of these men may be misclassified. Underascertainment of heterosexual transmission among men probably exists in other areas.

Compared with AIDS case data, seroprevalence surveys reflect more recent patterns of HIV infection. However, only limited information regarding the spread of heterosexually acquired HIV infection is available from current surveys because relatively few collect information about risk factors. Additional follow-up studies of STD clinic patients, seropositive blood donors, and civilian recruit applicants are now under way or being implemented to aid in monitoring the level and trends of heterosexual transmission (*14*).

Both AIDS surveillance and HIV seroprevalence follow-up studies indicate that an appreciable proportion of HIV infection among women in the United States is acquired through heterosexual contact. Because HIV seroprevalence is greater in men, a woman is more likely than a man to have an infected heterosexual partner. Women may also be unaware of the infection status of their male partners, as suggested by data on civilian recruit applicants. HIV seroprevalence rates among male recruit applicants have declined since 1985; in contrast, rates among female applicants have remained stable, suggesting that women may be less likely to self-defer because they do not know or suspect they are infected (*2*). The predominance of heterosexually acquired HIV infections in women of reproductive age has important implications for perinatal HIV transmission; nearly 30% of children with AIDS were infected by their mothers who acquired infection through heterosexual contact.

Recent increases in syphilis among heterosexuals, particularly among prostitutes, drug users, and their sexual contacts (*15,16*), indicate the need for more intensive application of recommended measures (*17,18*) to interrupt sexual and drug-use–related transmission of HIV infection. These measures include:

- development of community health education programs aimed at populations at increased risk;
- participation in mutually monogamous relationships or reduction of the number of sex partners;
- use of condoms to prevent exposure to semen and infected lymphocytes;
- enrollment of drug users in programs to eliminate use of IV-drugs; and
- increased voluntary HIV testing and counseling of persons at increased risk in settings such as STD and family planning clinics and drug-treatment programs.

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Notice to Readers

MMWR Recommendations and Reports

A new component in the *MMWR* series of publications, *Recommendations and Reports*, has been developed. The purposes of this publication are to permit increased access to recommendations and guidelines by consolidating them under one cover and to accommodate other reports more lengthy than articles that typically appear in the weekly *MMWR*. The first issue of *Recommendations and Reports*, published June 16, 1989, contains guidelines for prophylaxis against *Pnemocystis carinii* pneumonia (*1*). Subscribers to the *MMWR* will receive the *Recommendations and Reports*.

Reference

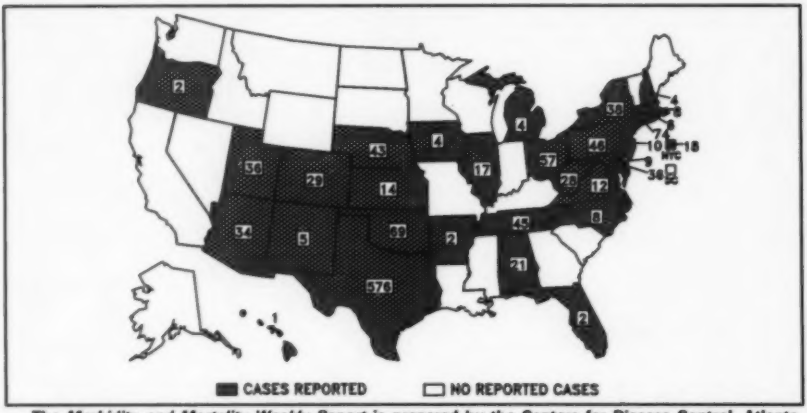
1. CDC. Guidelines for prophylaxis against *Pneumocystis carinii* pneumonia for persons infected with human immunodeficiency virus. MMWR 1989;38 (S-5).

Errata: Vol. 38, No. 21

p. 370. The last sentence on the page should begin: "This program, which is funded by the Commonwealth of Massachusetts and administered through the Massachusetts Department of Public Health, . . ."

p. 372. The numbers in the third line of the third paragraph should be: three (1%) of 310 persons.

FIGURE I. Reported measles cases — United States, weeks 20-23, 1989



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The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday. The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333; telephone (404) 332-4555.

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